Chapter 3
Existing Conditions

Existing transportation conditions were evaluated as part of the City of Beaverton Transportation System Plan 2000 update. This chapter summarizes existing traffic and transportation operation in the City. It considers vehicle traffic, as well as transit, pedestrian, bicycle, truck and other modes. In the summer of 2000, an inventory of traffic conditions in Beaverton was undertaken to establish a base year for updating the existing conditions of the 2015 City of Beaverton Transportation System Plan. Much of this data provides a benchmark (basis of comparison) for future assessment of transportation performance in Beaverton relative to desired policies.

The study area for the 2000 Transportation System Plan Update was expanded to respond to planning area agreements and potential future annexations. The updated study area is shown in Figure 3-1. Ninety-six intersections within the study area were selected for evaluation. Traffic data was gathered at these locations and analyzed in order to evaluate area traffic conditions including volumes and levels of service. The data and a map noting the locations of the intersections are included in the Appendix. The following sections briefly describe the updated functional classification, existing traffic volumes, and levels of service in the Beaverton transportation system.

Functional Classification

Roadways have two functions; to provide mobility and to provide access. From a design perspective, these functions can be incompatible since high or continuous speeds are desirable for mobility, while low speeds are more desirable for land access. Arterials emphasize a high level of mobility for through movement; local facilities emphasize the land access function; and collectors offer a balance of both functions.

Function can be best defined by connectivity. Without connectivity, neither mobility nor access can be served. Roadways that provide the greatest reach of connectivity are the highest level facilities.

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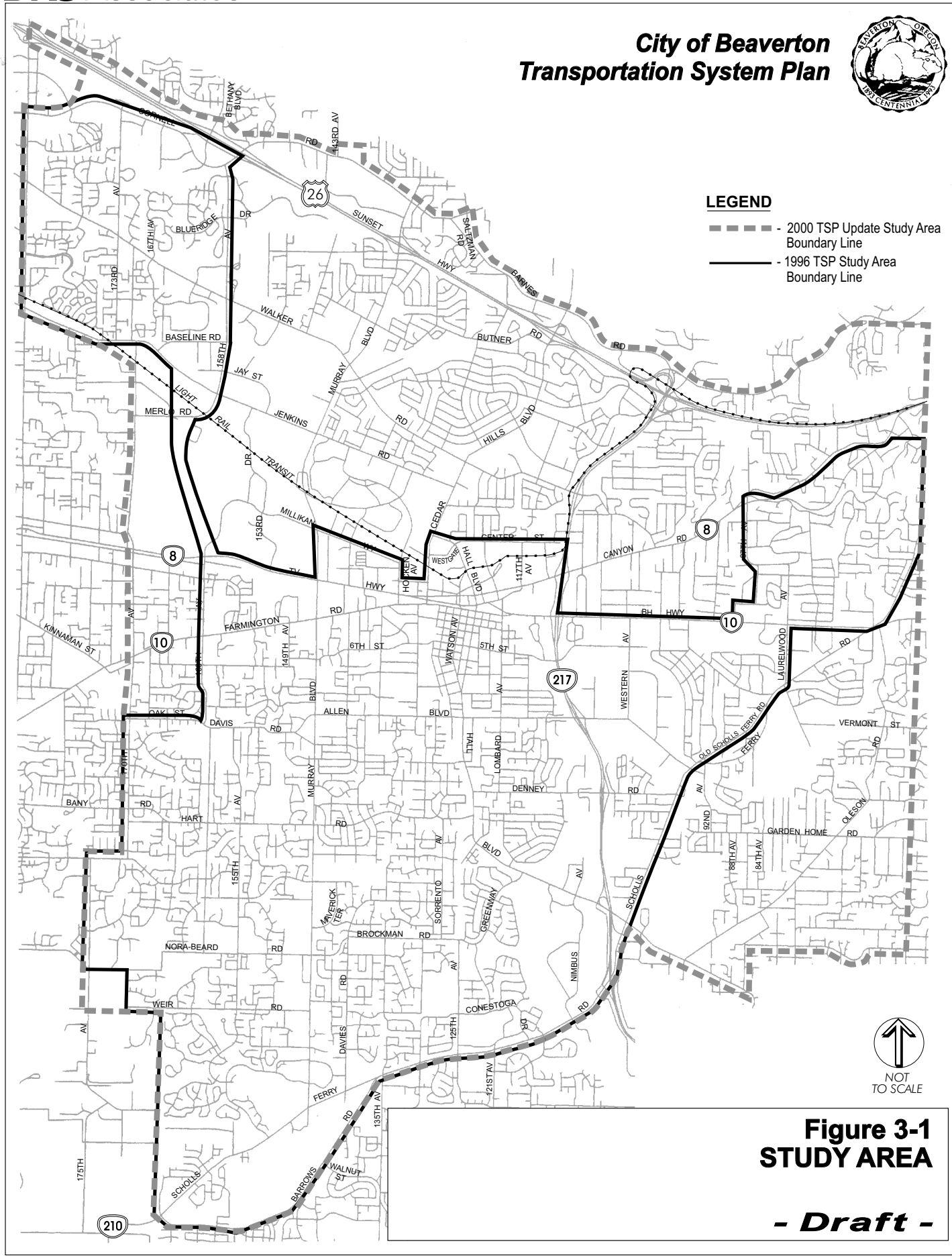

Figure 3-1
STUDY AREA

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The existing Beaverton functional classification was adopted from the previous TSP as part of the Comprehensive Plan. The functional classification of streets in Beaverton is represented by Figure 3-2. Any street not designated as either an arterial, collector or neighborhood route is considered a local street. A jurisdictional comparison of functional classification for streets in Beaverton is provided in the appendix.

Arterial streets serve to interconnect and support the principal arterial highway system. These streets link major commercial, residential, industrial and institutional areas. Arterial streets are typically spaced about one mile apart to assure accessibility and reduce the incidence of traffic using collectors or local streets in lieu of a well placed arterial street. Many of these routes connect to cities surrounding Beaverton.

Collector streets provide both access and circulation within residential and commercial/industrial areas. Collectors differ from arterials in that they provide more of a citywide circulation function, do not require as extensive control of access and penetrate residential neighborhoods, distributing trips from the neighborhood and local street system.

Neighborhood routes are usually long relative to local streets and provide connectivity to collectors or arterials. Because neighborhood routes have greater connectivity, they generally have more traffic than local streets and are used by residents in the area to get out of the neighborhood, but do not serve citywide/large area circulation. Traffic from cul-de-sacs and other local streets may drain onto neighborhood routes to gain access to collectors or arterials.

Local Streets have the sole function of providing access to immediate adjacent land. Service to "through traffic movement" on local streets is deliberately discouraged by design.

Traffic Volume

A complete inventory of peak hour traffic conditions was performed in the fall of 2000 as part of the Beaverton Transportation System Plan 2020 update. The traffic turn movement counts conducted as part of this inventory provide the basis for analyzing existing problem areas as well as establishing a base condition for future monitoring. Turn movement counts were conducted at 96 intersections during the evening (4-6 PM) peak period to determine existing operating conditions. These intersections were chosen in coordination with the City of Beaverton staff in order to update the existing conditions, incorporate the new revised study area, and address areas of noted concern.

Figure 3-3 shows the updated two-way existing traffic volumes in the Beaverton area. Overall, the two-way traffic volumes in the study area have increased from 1996 to 2000 with increases ranging from 5 to 50 percent. However, some of the two-way peak hour traffic volumes have

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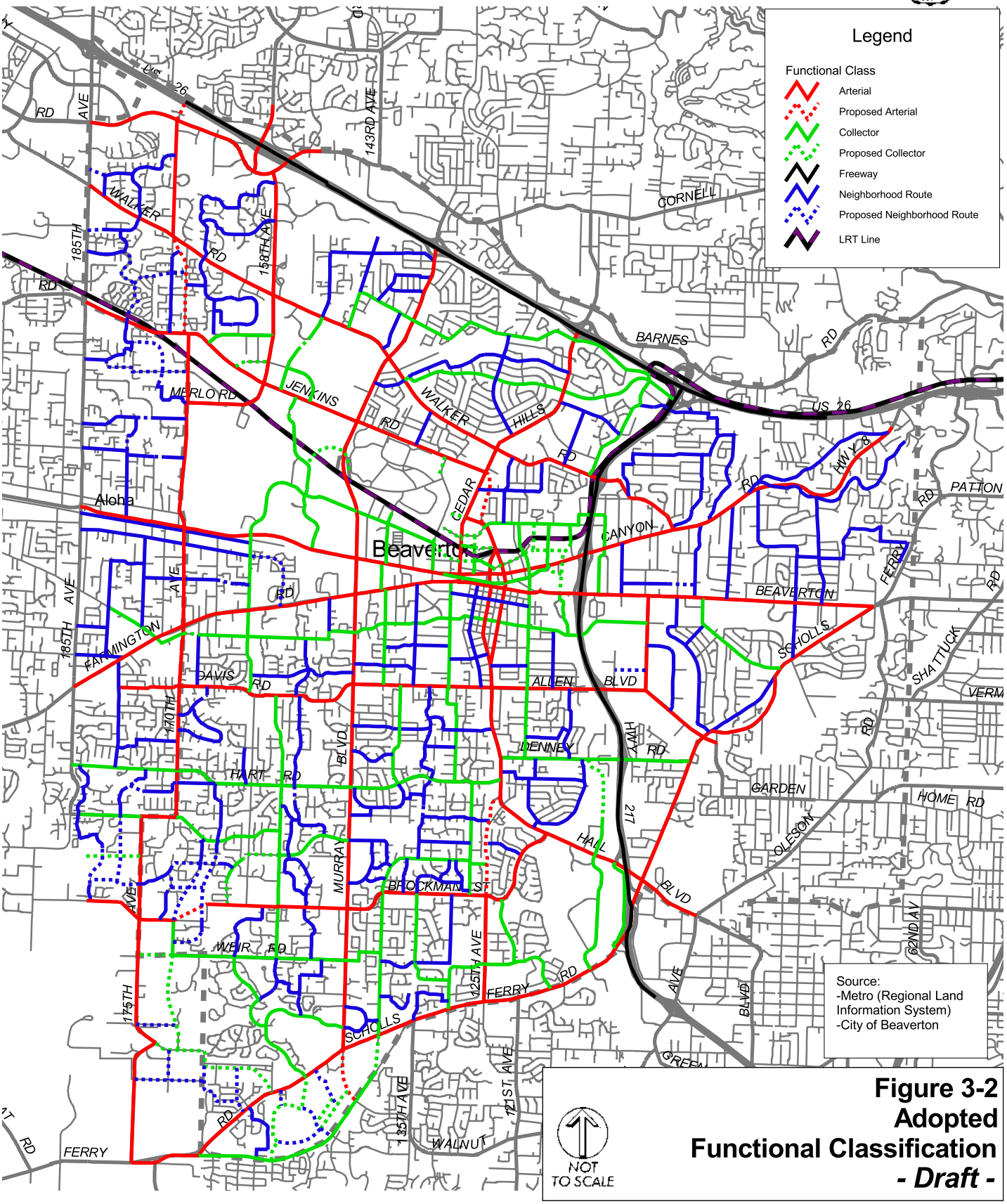

Figure 3-2
Adopted
Functional Classification
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Figure 3-3
EXISTING TRAFFIC VOLUMES

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actually decreased over the four-year period. These reductions can be explained by the construction and improvement of nearby roadways, as well as changes in local traffic patterns due to construction. Minor fluctuations in traffic volumes can be attributed to normal day-to-day variations in traffic flow that can be evident with different traffic counts.

The existing two-way traffic volumes along Scholls Ferry Road have increased substantially. Volumes to the west of Murray Boulevard have increased by approximately 50 percent. This significant increase in traffic volume is likely due to the large amounts of residential development on the west-end of Scholls Ferry Road. Traffic volumes on Scholls Ferry Road near Nimbus Avenue have remained fairly constant at approximately 3,500 vehicles per hour over the four-year period.

Traffic volumes on Murray Boulevard between US 26 and Scholls Ferry Road have not changed significantly since the previous study period. The current turn movement counts have not changed by more than 5 percent. Normal daily traffic volume fluctuation accounts for the slight decreases in two-way volume that are shown in Figure 3-2. The traffic volumes have held steady on Murray Boulevard due to the capacity limits of the roadway that will not allow for a substantial increase in volume.

The traffic volumes on Jenkins Road near Murray Boulevard decreased by approximately 20 percent with the current 2000 traffic counts. This decrease likely occurred because the counts were taken during construction in the area of the intersection, which decreased through traffic volume.

Traffic volumes on 158th Avenue and Walker Road have increased by approximately 15 percent since the previous turn-movement counts were conducted. This growth can be attributed to growth around the Nike Campus as well as the commercial area near IBM. Additionally, the traffic volumes have increased substantially in these areas because the two roadways were able to handle a higher volume and still operate at or under capacity. This allowed volumes to expand relative to other nearby crowded roadways.

The two-way traffic volumes on TV Highway/Canyon Road had significant changes from 1996 to 2000 conditions. To the east of ORE 217, the two-way traffic volumes actually decreased by approximately 10 percent. This is probably due to the construction at US 26 that reduced through volumes and encouraged motorists to find alternative routes. To the west of the Beaverton City Center, the traffic volumes have increased by approximately 5 percent.

Traffic volumes on Farmington Road/Beaverton-Hillsdale Highway had changes similar to the TV Highway/Canyon Road corridor. To the east of ORE 217, the volumes were slightly reduced. To the west of the Cedar Hills Boulevard, the two-way volumes increased by 10 to 20 percent. This large increase occurred because the roadway was able to handle significantly higher volumes while still operating at or near capacity.

TRAVEL TIME RUNS

Travel time is a key measure of transportation service and accessibility in a city. It provides a common reference for comparison between modes and a historical reference in future years. Travel time runs were conducted on several key routes in Beaverton. These travel time runs measured the length of time it took to travel from one end of Beaverton to the other on each key route during the PM peak period (4:00 PM to 6:00 PM) during the week. Seven key routes were surveyed:

- Murray Boulevard from Cornell Road to Scholls Ferry Road
- Scholls Ferry Road from Beaverton Hillsdale Highway to Beef Bend Road
- Walker Road from 106th Avenue to Stucki Road
- Beaverton Hillsdale Highway/Farmington Road from Scholls Ferry Road to 209th Avenue
- Cedar Hills Boulevard-Hall Boulevard from Barnes to Oleson
- Canyon Road from 91st to 185th
- Denney Road-Hart Road from Scholls Ferry to 185th

The time period observed was the weekday evening peak period. The results of these travel time runs are shown in Table 3-1 and Figure 3-4. In general, it is possible to get across town in Beaverton (either north/south or east/west) in approximately 15 to 20 minutes. This translates to average speeds of about 20 to 25 miles per hour, including delays at traffic signals and stop signs. Travel time along urban arterials can also be used as a measure of level of service.[1] Compared to capacity analysis, the average travel speed can help identify congested areas. Murray Boulevard, Cedar Hills Boulevard-Hall Boulevard, Canyon Road-TV Highway, and Denney Road-Hart Road were surveyed in both 1996 and 2000. On the average, average travel speeds on these corridors have decreased by 2-5 mph over the 4-year period. These deteriorations correspond to increases in traffic on cross streets as well as the corridors themselves.

[1] *1998 Highway Capacity Manual*, Special Report 209, Transportation Research Board, Washington D.C., 1998, Chapter 11.

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Figure 3-4
TRAVEL TIME ROUTES

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Table 3-1
Travel Time Surveys

Route	Direction	Distance (miles)	Time (minutes)	Average Speed (mph)
Murray Boulevard	Southbound	6.2	19	20
(from Cornell to Scholls Ferry)	Northbound	6.2	16	23
Scholls Ferry Road	Westbound	7.1	18	24
(from BH Hwy to Beef Bend)	Eastbound	7.1	19	22
Walker Road	Westbound	5.4	15	22
(from 106th to Stucki)	Eastbound	5.4	16	20
Beaverton Hillsdale Highway – Farmington Road	Westbound	7.3	20	22
(from Scholls Ferry to 209th)	Eastbound	7.3	22	20
Cedar Hills Boulevard – Hall Boulevard	Southbound	5.7	28	12
(from Barnes to Oleson)	Northbound	5.7	18	19
Canyon Road – TV Highway	Westbound	4.8	15	20
(from 91st to 185th)	Eastbound	4.8	15	19
Denney Road – Hart Road	Westbound	4.7	14	21
(from Scholls Ferry to 185th)	Eastbound	4.7	12	24
Arterial level of service D (for a class II arterial)*	-			**>17 MPH**

*Class II indicates an arterial that has free flow speeds in the 35-45 mph range

Traffic Control

The existing traffic signals in the Beaverton Transportation System Plan study area were updated with information provided by the City of Beaverton. The current existing traffic signals are shown in Figure 3-5. There were several removals, conversions, and additions of traffic signals from the 1996 conditions to the 2000 existing conditions. The flashing signal on Allen between Wilson and Menlo was removed. The pedestrian signal at 155th Avenue/Sexton Mountain was converted to an all-way flasher. A new signal was constructed at Watson Avenue/3rd Street.

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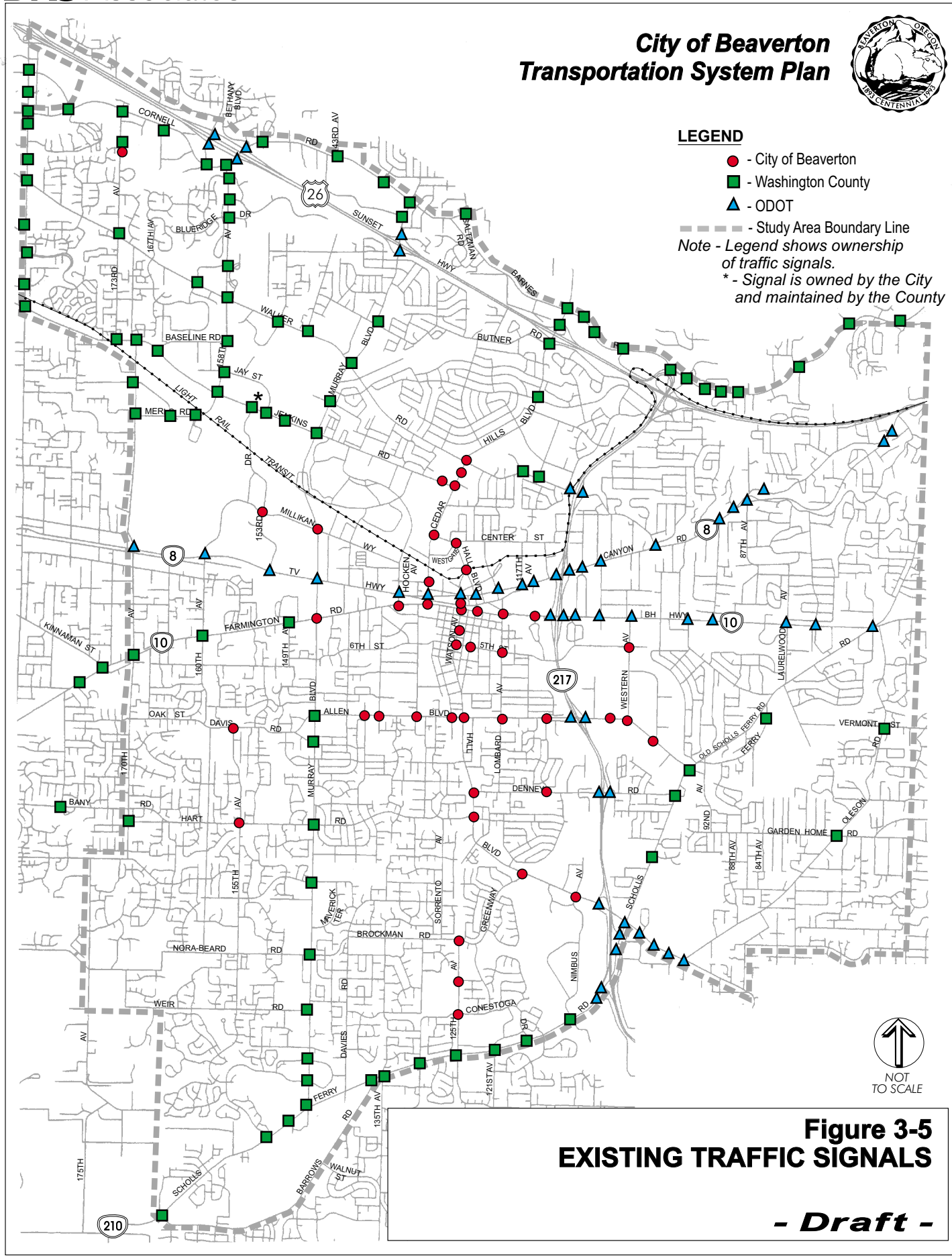

Figure 3-5
EXISTING TRAFFIC SIGNALS

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Traffic Levels of Service

Level of Service (LOS) is used as a measure of effectiveness for intersection operation. It is similar to a "report card" rating based upon average vehicle delay. Level of Service A, B, and C indicate conditions where traffic moves without significant delays over periods of peak hour travel demand. Level of Service D and E are progressively worse peak hour operating conditions. Level of Service F represents conditions where average vehicle delay exceeds 80 seconds per vehicle entering a signalized intersection and demand has exceeded capacity. This condition is typically evident in long queues and delays. Level of service D or better is generally the accepted standard for signalized intersections in urban conditions. Unsignalized intersections provide levels of service for major and minor street turning movements. For this reason, LOS E and even LOS F can occur for a specific turning movement; however, the majority of traffic may not be delayed (in cases where major street traffic is not required to stop). LOS E or F conditions at unsignalized intersections generally provide a basis to study intersections further to determine availability of acceptable gaps, safety and traffic signal warrants. A summary of the descriptions for level of service for signalized and unsignalized intersections is provided in the Level of Service Descriptions in the Beaverton Transportation System Plan technical appendix.

Intersection turn movement counts were conducted during the evening peak periods to determine the existing 2000 LOS based on the *2000 Highway Capacity Manual* methodology for signalized and unsignalized intersections[2] (see Appendix L for descriptions). Traffic counts and level of service calculation sheets can be found in the appendix.

The following sections describe existing conditions along several key corridors in Beaverton. Tables 3-2 to 3-6 provide a summary of the updated PM peak hour levels of service for the study intersections in Beaverton. Most intersections operate at LOS D or better, with some exceptions.

Scholls Ferry Road

Fourteen signalized intersections were analyzed along the Scholls Ferry corridor. Three of the intersections operate at a LOS of B, and six operate at a LOS of C. The remaining five intersections operate at a LOS of D or E. The unsignalized intersections of Scholls Ferry/Davies Road and Scholls Ferry/Laurelwood operate at a LOS of F for the minor street left turns. The current intersection operations indicate an increase in delay from the 1996 conditions. The 1996 existing conditions showed that one intersection operated at a LOS of B, four operated at a LOS of C, five operated at a LOS of D, and none operated at a LOS of E or F. Table 3-2 shows the existing conditions along the Scholls Ferry corridor.

[2] *2000 Highway Capacity Manual*, Transportation Research Board, 2000.

Table 3-2
Existing PM Peak Hour Intersection Level of Service
Study Intersections Along Scholls Ferry Road

Intersection	Level of Service	Average Delay	Volume / Capacity
Murray/Scholls Ferry	C	32.0	0.70
Scholls Ferry/121st	D	40.4	0.96
Scholls Ferry/125th	D	41.6	0.92
Scholls Ferry/135th	B	18.4	0.70
Scholls Ferry/Allen	E	64.5	0.98
Scholls Ferry/Barrows	B	17.3	0.69
Scholls Ferry/Cascade	C	23.8	0.76
Scholls Ferry/Conestoga	B	10.3	0.72
Scholls Ferry/Davies	C/F		
Scholls Ferry/Denney	C	24.6	0.75
Scholls Ferry/Hall	E	65.9	0.99
Scholls Ferry/Nimbus	D	53.6	0.99
Scholls Ferry/Laurelwood	B/F		
Scholls Ferry/ORE 217 northbound off ramp	C	22.2	0.71
Scholls Ferry/ORE 217 northbound on ramp	C	30.3	0.78
Scholls Ferry/ORE 217 southbound ramp	C	31.6	0.76

TV Highway/Canyon Road

Thirteen intersections were analyzed along the TV Highway/Canyon Road corridor. The only intersections with an existing operation of LOS E were 170th/TV Highway and Murray/TV Highway. The other intersections operated at a LOS of D or better, with two at a LOS of B and seven at a LOS of C. The 1996 conditions showed similar results, with two intersections operating at a LOS of B, six operating at a LOS of C, four operating at a LOS of D, and one operating at a LOS of E. Table 3-3 shows the existing conditions along the TV Highway/Canyon Road corridor.

Table 3-3
Existing PM Peak Hour Intersection Level of Service
Study Intersections Along TV Highway/Canyon Road

Intersection	Level of Service	Average Delay	Volume / Capacity
170th/TV Hwy	E	63.1	1.00
160th/TV Hwy	D	49.6	0.97
Canyon/114th	A/C		
Canyon/117th	C	22.9	0.66
Canyon/87th	B	18.7	0.68
Canyon/Cedar Hills	C	34.1	0.85
Canyon/Hall	C	22.9	0.80

Intersection	Level of Service	Average Delay	Volume / Capacity
Canyon/Watson	B	16.8	0.68
Canyon/Lombard	C	21.2	0.66
Canyon/Hocken	D	38.3	0.90
Canyon/ORE 217 northbound ramp	C	24.9	0.66
Canyon/ORE 217 southbound ramp	C	24.3	0.67
TV Hwy/Murray	E	65.1	1.00

Farmington Road/Beaverton Hillsdale Highway

Twelve intersections were analyzed along the Farmington Road/Beaverton-Hillsdale Highway corridor. The only intersection with an existing operation of LOS E or F was Murray/Farmington. The other intersections operated at a LOS of C. The 1996 conditions showed similar levels of delay, with three intersections operating at a LOS of B, seven operating at a LOS of C, three operating at a LOS of D, and one operating at a LOS of E. Table 3-4 shows the existing conditions along the Farmington Road/Beaverton-Hillsdale Highway Corridor.

Table 3-4
Existing PM Peak Hour Intersection Level of Service
Study Intersections Along Farmington Road/Beaverton-Hillsdale Highway

Intersection	Level of Service	Average Delay	Volume / Capacity
170th/Farmington	C	26.1	0.60
BH Hwy/Griffith	C	31.0	0.81
BH Hwy/Laurelwood	C	26.2	0.80
BH Hwy/Western	C	33.7	0.87
Farmington/Cedar Hills	C	27.2	0.90
Farmington/Hall	C	25.4	0.85
Farmington/Hocken	C	22.6	0.84
Farmington/Lombard	C	30.7	0.78
Farmington/ORE 217 northbound ramp	C	34.9	0.94
Farmington/ORE 217 southbound ramp	C	25.6	0.73
Farmington/Watson	C	24.2	0.77
Murray/Farmington	F	89.4	1.00

The other study intersections had operations ranging from a LOS of B to a LOS of F. Five intersections operate at a LOS of B, twenty-three operate at a LOS of C, twelve operate at a LOS of D, and the remaining intersections operate at a LOS of E or F. Comparatively, the 1996 conditions showed that of the remaining study intersections, one operated at a LOS of A, nine operated at a LOS of B, fifteen operated at a LOS of C, thirteen operated at a LOS of D, two operated at a LOS of E, and six operated at a LOS of F. Table 3-5 shows the existing conditions at the remaining study intersections.

Table 3-5
Existing PM Peak Hour Intersections Level of Service
Study Intersections

Intersection	Level of Service	Average Delay	Volume / Capacity
158th/Blueridge	C	26.3	0.71
158th/Cornell	C	27.1	0.78
158th/Jay	C	26.4	0.60
158th/Jenkins	D	38.2	0.86
158th/Walker	E	61.3	1.00
170th/Baseline	C	21.2	0.58
170th/Oak	A/F		
170th/Merlo	C	22.4	0.63
170th/Hart/Bany	F	77.3	1.17
173rd/Walker	E	63.4	0.98
Allen/ORE 217 northbound ramp	C	25.5	0.81
Allen/ORE 217 southbound ramp	C	34.2	0.88
Allen/Western	C	28.7	0.73
Cedar Hills/Barnes	E	68.8	1.00
Cedar Hills/Butner	C	34.7	0.83
Cedar Hills/Hall	C	30.9	0.74
Cedar Hills/Jenkins	D	40.0	0.88
Cedar Hills/US 26 eastbound ramps	C/F		
Cedar Hills/US 26 westbound ramps	B	12.8	0.63
Cedar Hills/Walker	E	58.2	1.00
Cornell/143rd	C	25.5	0.80
Cornell/173rd	D	43.5	0.93
Cornell/Barnes/Saltzman	E	57.3	0.94
Cornell/Bethany	C	30.4	0.76
Denney/ORE 217 northbound ramp	B/F		
Denney/ORE 217 southbound ramp	A/F		
Garden Home/84th	A/D		
Garden Home/88th	A/C		
Greenway/125th	B	17.5	0.52
Hall/Allen	D	44.4	0.91
Hall/Cascade/ORE 217 southbound ramp	D	51.3	0.96
Hall/Center	C	23.8	0.48
Hall/Denney	C	32.4	0.85
Hall/Greenway	E	61.9	1.00
Hall/Nimbus	C	34.3	0.84
Hart/155th	B	18.2	0.77
Murray/6th	C/F		
Murray/Allen	D	51.0	0.95

Intersection	Level of Service	Average Delay	Volume / Capacity
Murray/Brockman/Beard	C	31.4	0.74
Murray/Cornell	E	62.3	0.98
Murray/Hart	D	37.2	0.86
Murray/Jenkins	D	44.5	0.89
Murray/US 26 eastbound ramps	B	15.2	0.55
Murray/US 26 westbound ramps	C	28.1	0.79
Murray/Walker	D	54.2	0.98
Oleson/Garden Home	D	42.8	0.95
Oleson/Vermont	C	25.1	0.76
US 26 eastbound ramp/Bethany	C	22.2	0.66
US 26 eastbound ramp/Cornell	B	17.1	0.66
US 26 westbound ramp/Bethany	D	44.1	0.95
US 26 westbound ramp/Cornell	C	28.4	0.78
Walker/ORE 217 northbound ramp	C	21.1	0.68
Walker/ORE 217 southbound ramp	B	19.4	0.84

Figure 3-6 provides a summary of intersections operating at or near capacity based on level of service calculations. The majority of the study intersections are currently operating at acceptable capacity levels. Table 3-6 provides a list of the intersections operating at capacity under existing conditions, including an indication of how the capacity problem was addressed in the 2015 TSP.

Table 3-6
Intersections Operating at Capacity under Existing Conditions

Intersection	Capacity Issue Improvement Plan
Scholls Ferry/Hall	Addressed in 2015 TSP (add turn lane)
Scholls Ferry/Davies	Addressed in 2015 TSP (Davies improvement)
Scholls Ferry/Allen	Not addressed as a problem in 2015 TSP (acceptable capacity in 2015)
Denney/217 NB ramps	Addressed in 2015 TSP (signalize)
Denney/217 SB ramps	Addressed in 2015 TSP (signalize)
Bany-Hart/170th	Addressed in 2015 TSP (170th improvements)
Oak/170th	Not studied in 2015 TSP (to be addressed in update)
TV Hwy/170th	Addressed in 2015 TSP (TV Hwy and 170th improvements)
Murray/6th	Not addressed in 2015 TSP (construction of a traffic signal planned for summer of 2001)
Farmington/Murray	Addressed in 2015 TSP (Farmington improvement)
Walker/158th	Addressed in 2015 TSP (add turn lanes)
Walker/Cedar Hills	Addressed in 2015 TSP (add turn lanes)
Murray/TV Highway	Addressed in 2015 TSP (add turn lanes)
Murray/Walker	Addressed in 2015 TSP (Walker improvement)
Cedar Hills/Barnes	Not studied in 2015 (to be addressed in update)
Cornell/Barnes	Not studied in 2015 (to be addressed in update)

Intersection	Capacity Issue Improvement Plan
Hall/Greenway	Addressed in 2015 TSP (125th Extension, turn lane)
173rd/Walker	Addressed in 2015 TSP (Walker and 173rd Improvements, turn lanes)
Murray/Cornell	Not studied in 2015 (to be addressed in update)

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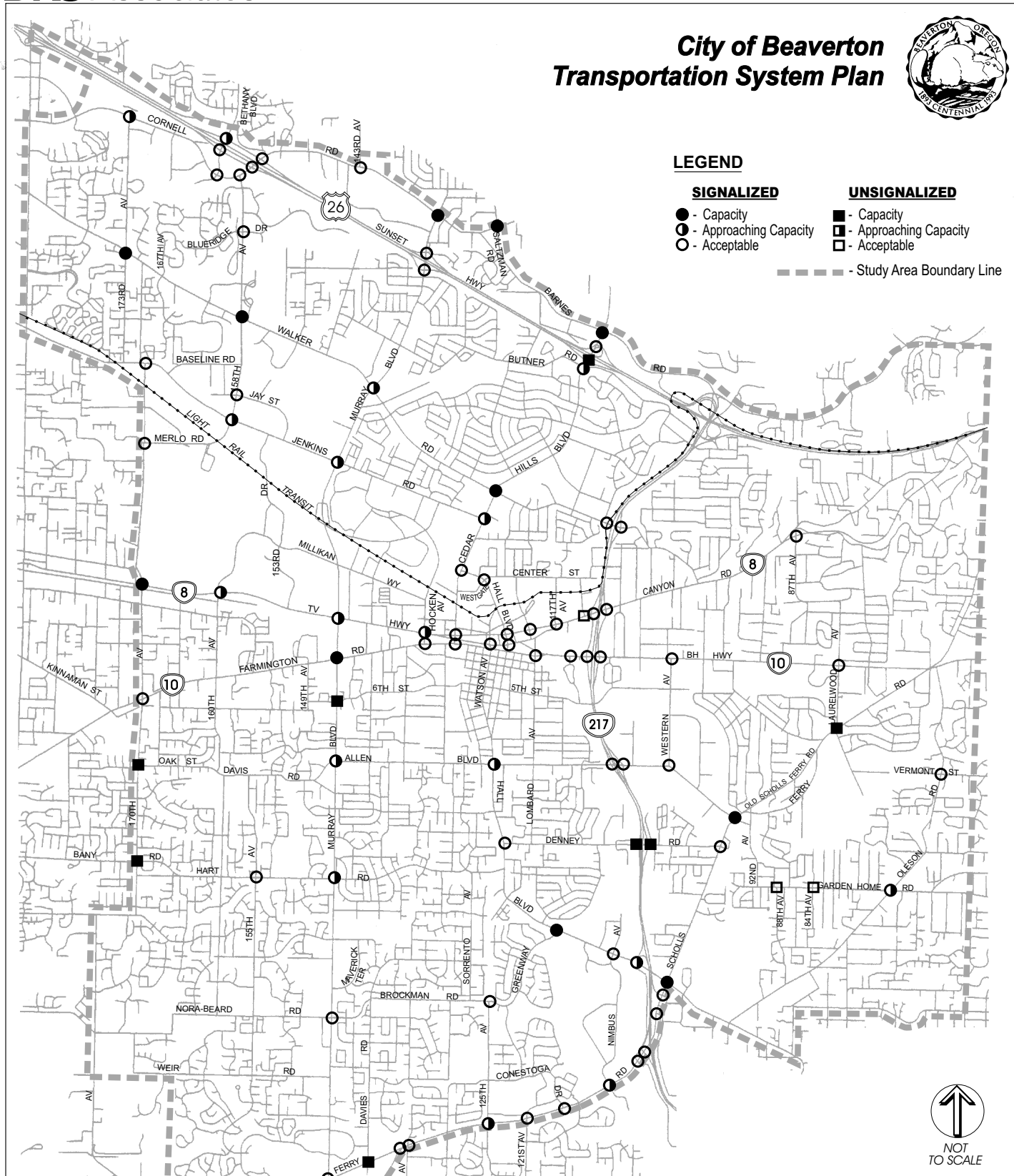

Figure 3-6
CAPACITY SUMMARY

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Collisions

Collision data was obtained from Washington County and used to update the high collision intersection list from the 2015 Beaverton Transportation System Plan. The 2015 list contained several of the same intersections as the current list. Intersections that dropped off of the list were likely locations of improvement. Intersections that have been added to the list could have an increase in collision numbers due to an increase in volume and congestion, which can create more conflicts and aggressive driving behavior, or are intersections that are included in this study as part of the new study area. Table 3-7 shows the updated SPIS (Safety Priority Index System, which is a composite number derived from such factors as the number of collisions, type of collisions, injury types, and traffic volume) ranking list (which only includes state and county intersections)[3]. Figure 3-7 shows the location of the intersections on the study area map. The safety at these intersections should be addressed in this TSP update. Collision data for intersections of two City of Beaverton streets was also collected and analyzed by city staff (using the Washington County methodology). The city street/city street intersection rankings are located in appendix M. Not one of the city street city street intersections calculated would rank 10th or higher in the SPIS rankings shown in Table 3-7.

Table 3-7
SPIS Ranking of Ten Highest Beaverton TSP Study Area Intersections

Ranking	Street	Cross Street	Number of Collisions (1997-1999)
1*	Baseline Road	185th Avenue	100
2	Murray Boulevard	TV Highway	133
4	Hall Boulevard	Scholls Ferry Road	85
5	Millikan Way/160th	TV Hwy	37
6	BH Highway	Scholls Ferry Road	47
8	Farmington Road	170th Avenue	31
9	Nimbus Avenue	Scholls Ferry Road	50
10	TV Hwy (Canyon Rd)	110th Avenue	29
12	Garden Home Road	Oleson Avenue	40
13	Farmington Road	Murray Boulevard	74

*Note that the intersection of Baseline/185th Avenue ranked higher than the intersection of Murray/TV Highway due in part to a larger number of fatal/major injury collisions (4 compared to 0).

[3] Note that calculations are based only on officially reported collisions.

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Figure 3-7
TEN HIGHEST COLLISION LOCATIONS IN BEAVERTON AREA (1996-1998)
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Transit

Transit service is provided to Beaverton by the Tri-County Metropolitan District of Oregon (Tri-Met). There have been significant changes to the transit system since the 2015 Beaverton Transportation System Plan Study, mainly because of the West-Side Light Rail Project. Figure 3-8 shows current Tri-Met bus routes. Weekday bus boarding information was received from Tri-Met and reflects the current 2000 census. Table 3-8 shows that ridership has changed significantly for the routes serving Beaverton since the 2015 TSP. Many of the routes have gained ridership, while some have decreased due to the light rail. Table 3-9 shows the average headway and rider boarding frequency for Tri-Met routes serving Beaverton. All of the existing routes exceed the Tri-Met minimum boardings per revenue hour performance standard of 10 boarding per revenue hour. All of the transit routes operate at headways of 30 minutes or better during both the AM and PM peak hours, with the exception of route 54 (Beaverton-Hillsdale) which operates with a headway of 60 minutes during the PM peak hour. Headways of 30 minutes or better correspond to a LOS of D or better as defined in *the 2000 Highway Capacity Manual* methodology[4]. Headways of 60 minutes are defined as the LOS of E/F threshold.

Figure 3-9 shows the transit coverage of transit supportive land use in the Beaverton area. The 2000 *Highway Capacity Manual* defines transit supportive areas as having either a household density of 3 HH/acre or an employment density of 4 EMP/acre[5]. The 1994 Metro Travel Demand Model Land Use was used to define existing conditions. The transit coverage area (transit buffer) is defined as 0.25 miles from a bus stop, 0.25 miles from a transit shuttle service area, and 0.50 miles from a LRT station. The existing transit coverage is fairly good in Beaverton, with approximately 85% of the transit supportive zones (8,450 of 9,980 acres) covered within the transit buffer. However, there are small pockets that do not have walking access to transit and therefore do not meet the 2015 Beaverton TSP goal of providing coverage within one-quarter mile to all of Beaverton.

[4] *2000 Highway Capacity Manual*, Transportation Research Board, 2000, Chapter 27.

[5] *Ibid*.

Table 3-8
Average Weekday Boarding Rides System-wide for Tri-Met Routes serving Beaverton

Route	93-94	94-95	95-96	1999	2000
MAX				58,712	
Nimbus Shuttle					
20 East/West Burnside	4,736	6,121	6,385	6,307	6,310
43 Taylors Ferry Road				942	789
45 Garden Home				1,327	1,274
47 Baseline-Evergreen				524	528
48 Cornell				454	573
50S Cornell Oaks				80	120
52 Farmington-185th	1,582	1,781	1,911	2,886	3,058
53S Arctic-Allen				221	166
54 Beaverton-Hillsdale	2,203	2,395	2,421	2,512	2,712
55 Hamilton				434	385
56 Scholls Ferry Road	1,908	2,174	2,256	2,088	2,197
57 Forest Grove	7,389	8,615	8,525	5,634	6,496
58 Canyon Road				2,217	2,100
59 Cedar Hills	1,709	1,716	1,664	330	374
60 Leahy road	141	117	115	54	46
61X Marquam Hill-Beaverton				236	283
62 Murray Boulevard	675	786	791	1,987	2,280
67 Beaverton-Cedar Hill	1,143	1,324	1,062	712	886
76 Tigard-Tualatin	404	610	697	2,318	2,448
78 Beaverton-Lake Oswego	2,131	2,823	3,190	2,239	2,190
88 Hart-198th				1,176	1,350
89 Tanasbourne				698	724
91X TV HWY Express	786	890	975	n/a	n/a
92X South Beaverton Express	n/a	608	691	552	569
94X Walker Road Express	n/a	441	n/a	n/a	n/a

Note: census data from routes that did not yet exist or were discontinued is shown as n/a (not available), unavailable data is denoted by a gray cell

Table 3-9
Existing Weekday System-Wide Frequency (minutes) and Average System-Wide Boarding Rates for Tri-Met Routes Serving the Beaverton Area

Route	7 am-8:30 am	8:30am-4 pm	4 pm-6 pm	6 pm – 9:30 pm	9:30pm-Mid	Boarding Rides/Revenue Hour
MAX	7	10	7	15	15/30	n/a
Nimbus Shuttle	n/a	n/a	n/a	n/a	n/a	n/a
20 East/West Burnside*	15	15	15	15	30	49.8
43 Taylors Ferry Road	30	60	30	-	-	30.5
45 Garden Home	20	60	25	60	-	32.4
47 Baseline-Evergreen	30	60	30	-	-	
48 Cornell	30	30	30	60	-	
50S Cornell Oaks	30	-	30	-	-	17.2
52 Farmington-185th *	15	15	15	30	60	41.5
53S Arctic-Allen*	30	-	30	-	-	20.7
54 Beaverton-Hillsdale	20	30	60	60	60	48.3
55 Hamilton	30	-	25	-	-	21.3
56 Scholls Ferry Road	15	30	15	60	60	43.0
57 Forest Grove	15	15	15	30	30	37.1
58 Canyon Road	15	30	15	30	-	27.2
59 Cedar Hills	30	30	30	60	-	28.2
60 Leahy road	30	-	30	-	-	28.0
61X Marquam Hill-Beaverton	30	-	30	-	-	29.7
62 Murray Boulevard	15	30	15	30	-	36.4
67 Beaverton-Cedar Hill	30	30	30	60	-	32.4
76 Tigard-Tualatin	25	30	30	60	-	34.2
78 Beaverton-Lake Oswego	20	30	20	60	60	36.1
88 Hart-198th	30	30	30	60	-	38.2
89 Tanasbourne*	30	30	30	60	-	22.4
92X South Beaverton Express	15	-	15	-	-	32.1

Source: Transit Choices for Livability Handbook, Tri-Met, Tables 1 and 2.
*Less frequent service provided to portion or end of route

Figure 3-10 shows the existing transit shelters and bus stops in the Beaverton TSP Study Area. Tri-Met's most recent passenger census was used to determine boarding at each bus stop[6]. Bus stops with boardings of at least 35 passengers per day meet Tri-Met's criteria for consideration of bus shelter locations.

[6] *Spring 2000 Passenger Census*, Tri-Met, 2000.

City of Beaverton Transportation System Plan

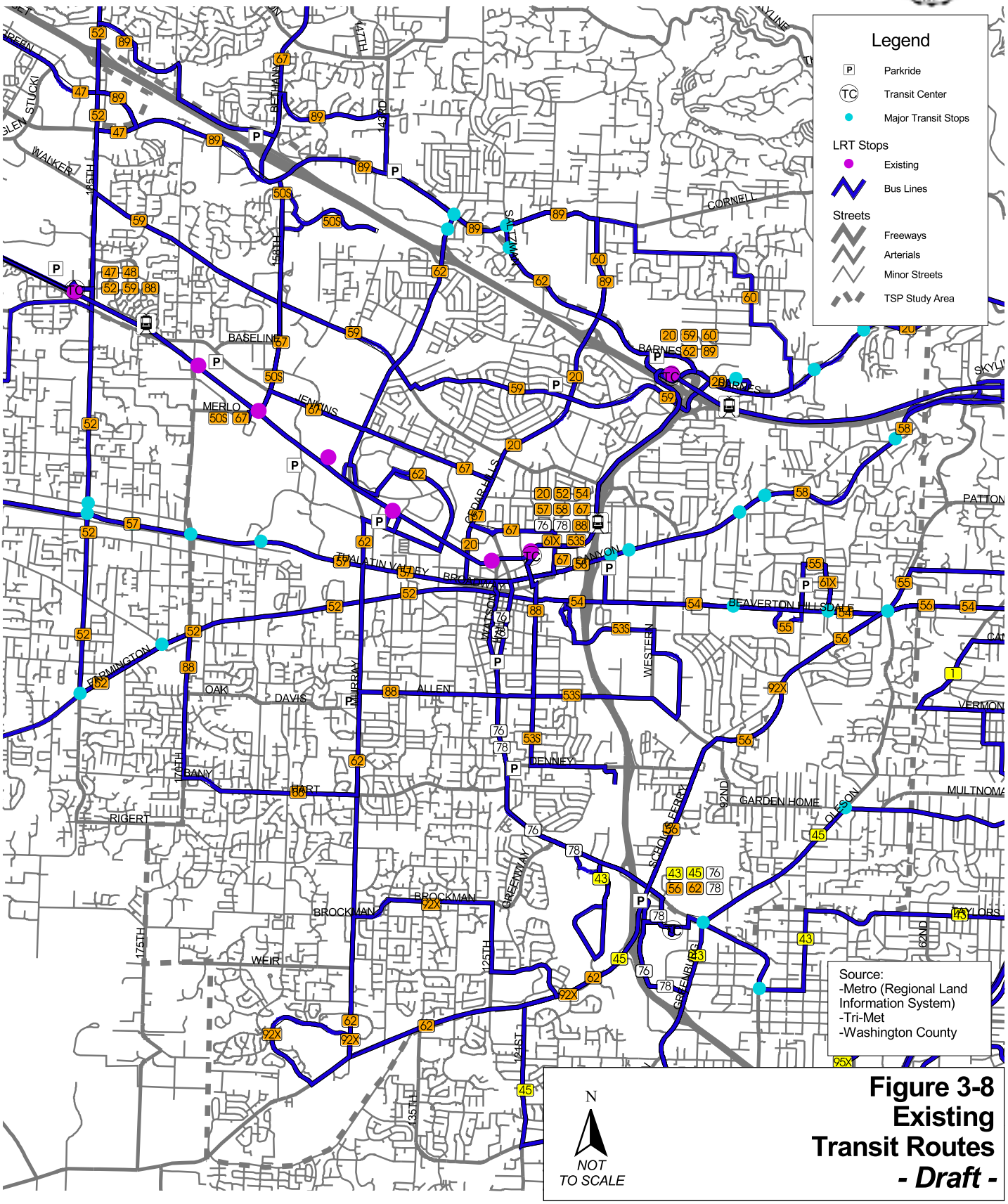

Figure 3-8
Existing Transit Routes
- Draft -

City of Beaverton
Transportation System Plan

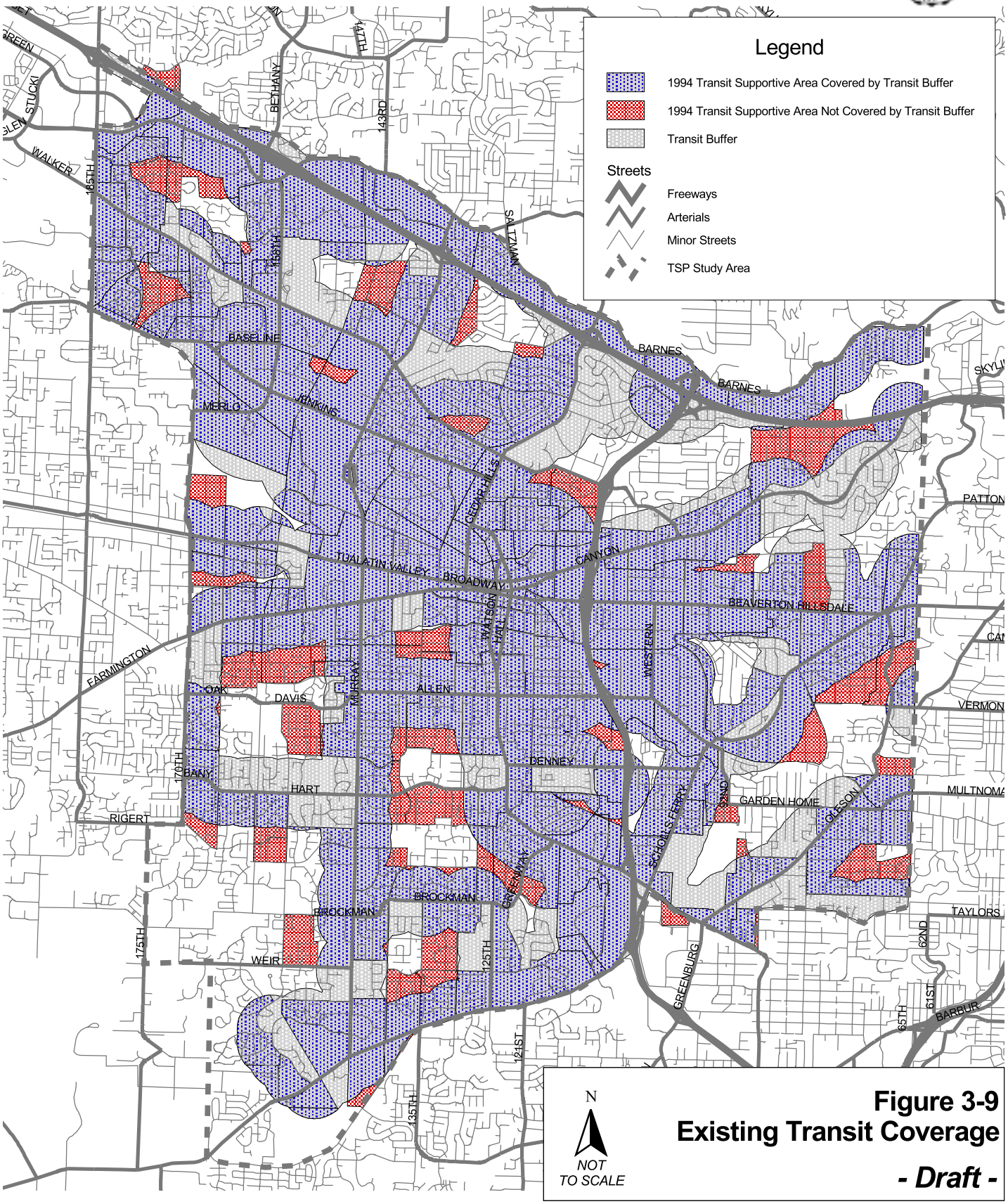

Figure 3-9
Existing Transit Coverage

- Draft -

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City of Beaverton
Transportation System Plan

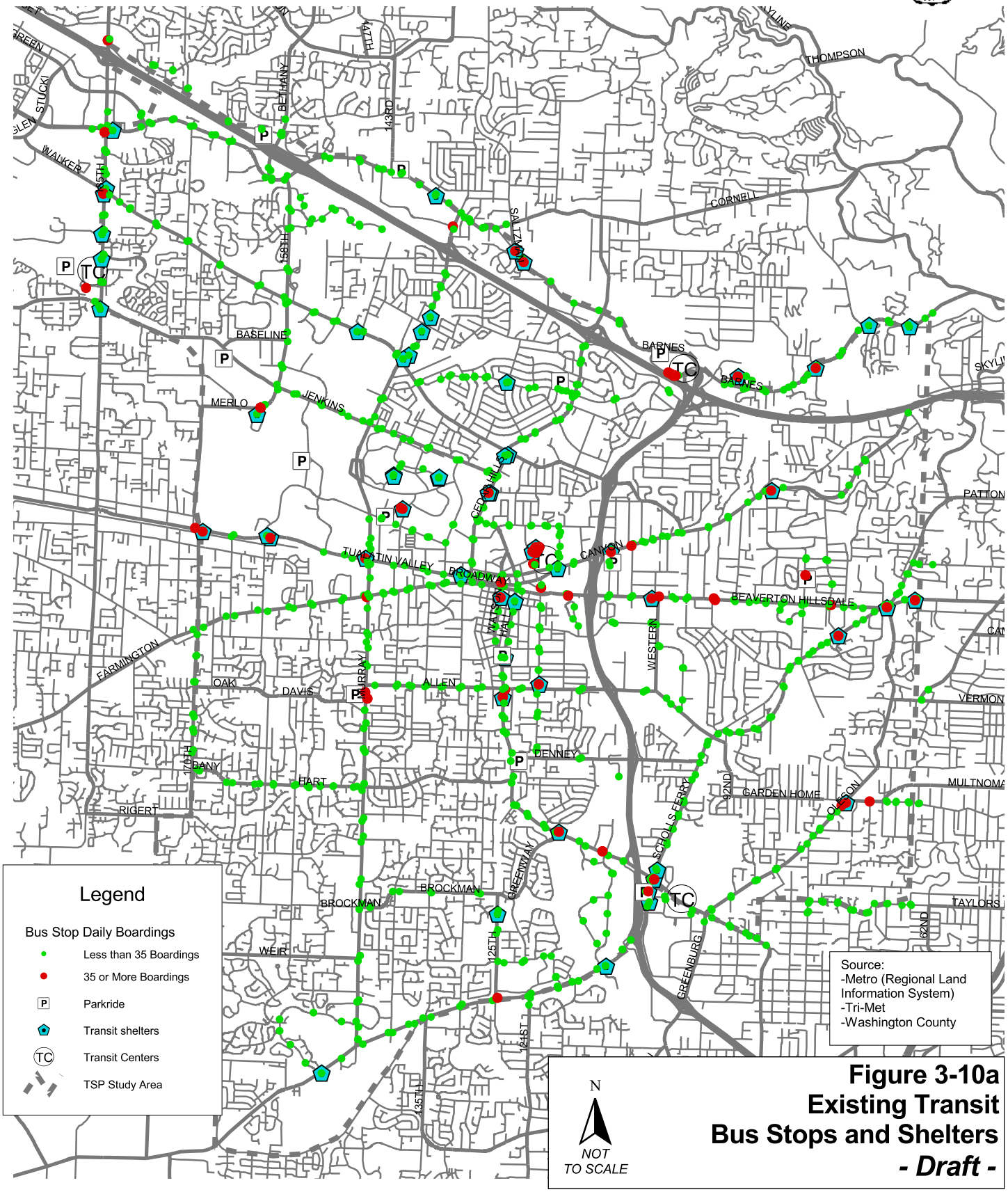

Figure 3-10a
Existing Transit
Bus Stops and Shelters
- Draft -

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City of Beaverton
Transportation System Plan

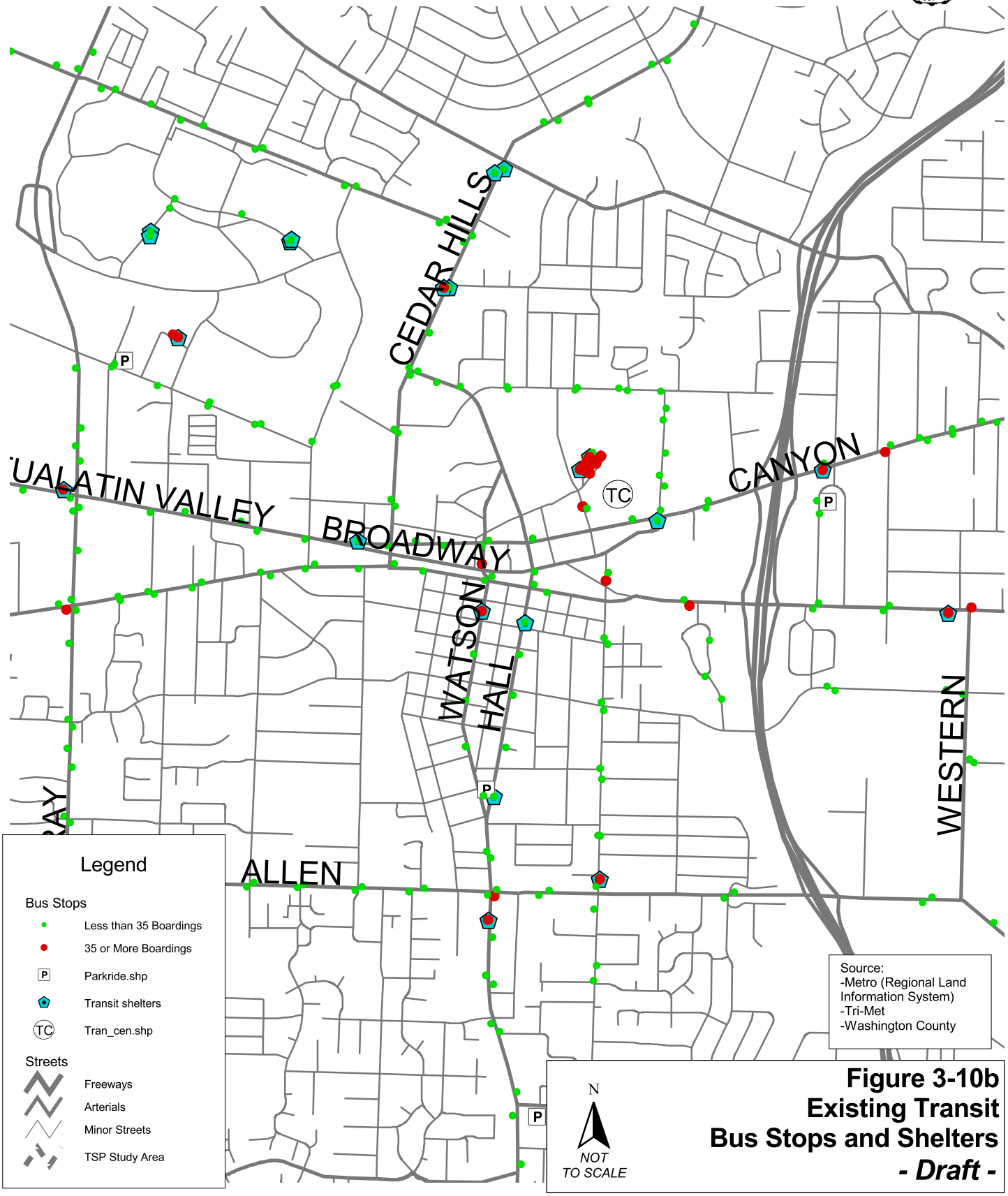

Figure 3-10b
Existing Transit
Bus Stops and Shelters
- Draft -

Bicycle

Bicycle counts were conducted during the evening peak period (4:00 to 6:00 PM) at the study intersections in Beaverton and are shown in Figure 3-11. The updated existing bike lanes, designated bikeways and off-street bike pathways are shown in Figure 3-12. The designated bikeway facilities may or may not have future bike lanes.

There is limited connectivity for bicyclists traveling to activity centers in Beaverton. However, there are two primary north/south routes (Murray Boulevard and Hall Boulevard between Washington Square and Farmington Road) and three primary east/west routes (Scholls Ferry Road, Brockman Road and 5th Street) in Beaverton. Bike lane gaps on Cedar Hills Boulevard, TV Highway, and Farmington Road should be addressed to provide connectivity for bicyclists on the arterials in the City of Beaverton.

Bicycles are permitted on all roadways in the City except for the ORE 217 freeway. Bicycle use in Beaverton is generally for recreational, school and commuting purposes. The City includes lands owned and maintained by the Tualatin Hills Park and Recreation District that provide several off-street bike paths in Beaverton for bicyclists and pedestrians. The Tualatin Hills Park and Recreation District has completed a master plan that includes many proposed trails in Beaverton.

Pedestrians

Figure 3-14 shows the updated existing sidewalks on arterial and collector streets in Beaverton. A majority of arterial and collector streets in Beaverton have sidewalks on at least one side of the street. There are some locations where sidewalks are not connected; however, connectivity and pedestrian linkages are relatively good. In addition, besides the facilities that are shown on this map, many residential streets also have sidewalks.

Pedestrian counts were updated with the current intersection PM peak turn movement counts. The updated pedestrian movement counts are shown in Figure 3-13. The current counts were broken down into the peak hour count for pedestrians, while the 2015 TSP used the peak period (4-6 PM) for pedestrian volumes. Therefore, the current volumes reflect a smaller time interval than the 2015 TSP data. The major change to pedestrian volume in the downtown Beaverton area is related to the new light rail station, which is a large pedestrian generator. The most significant pedestrian movements occur in the Beaverton downtown area on TV Highway, Cedar Hills Boulevard, Farmington Road and Hall Boulevard.

Sidewalks at least five feet wide are required in all new development. Existing roadways that do not have sidewalks are being retrofitted where terrain and right-of-way make it economically

feasible to do so. All newly constructed sidewalks include wheelchair ramps at intersections to permit easy ingress/egress for wheelchairs. In addition to paved sidewalks, pedestrian paths are included in many of the City's parks, open spaces and greenways, including the Tualatin Hills Park and Recreation District pathways. The most important needs are to fill in the gaps on the arterial system such as on TV Highway and Farmington Road. However, the City of Beaverton should work to continue increasing the sidewalk coverage on all arterials, collectors, and residential streets in the Beaverton area.

Trucks

The truck percentages (heavy vehicles) as a portion of through traffic at the study intersections were updated with the current turn movement counts. The current truck percentages, which range from 0 to 4 percent, are shown on Figure 3-15. Overall, the truck percentages have not changed significantly from the 1996 data. Existing through truck routes are shown in Figure 3-16.

City of Beaverton
Transportation System Plan

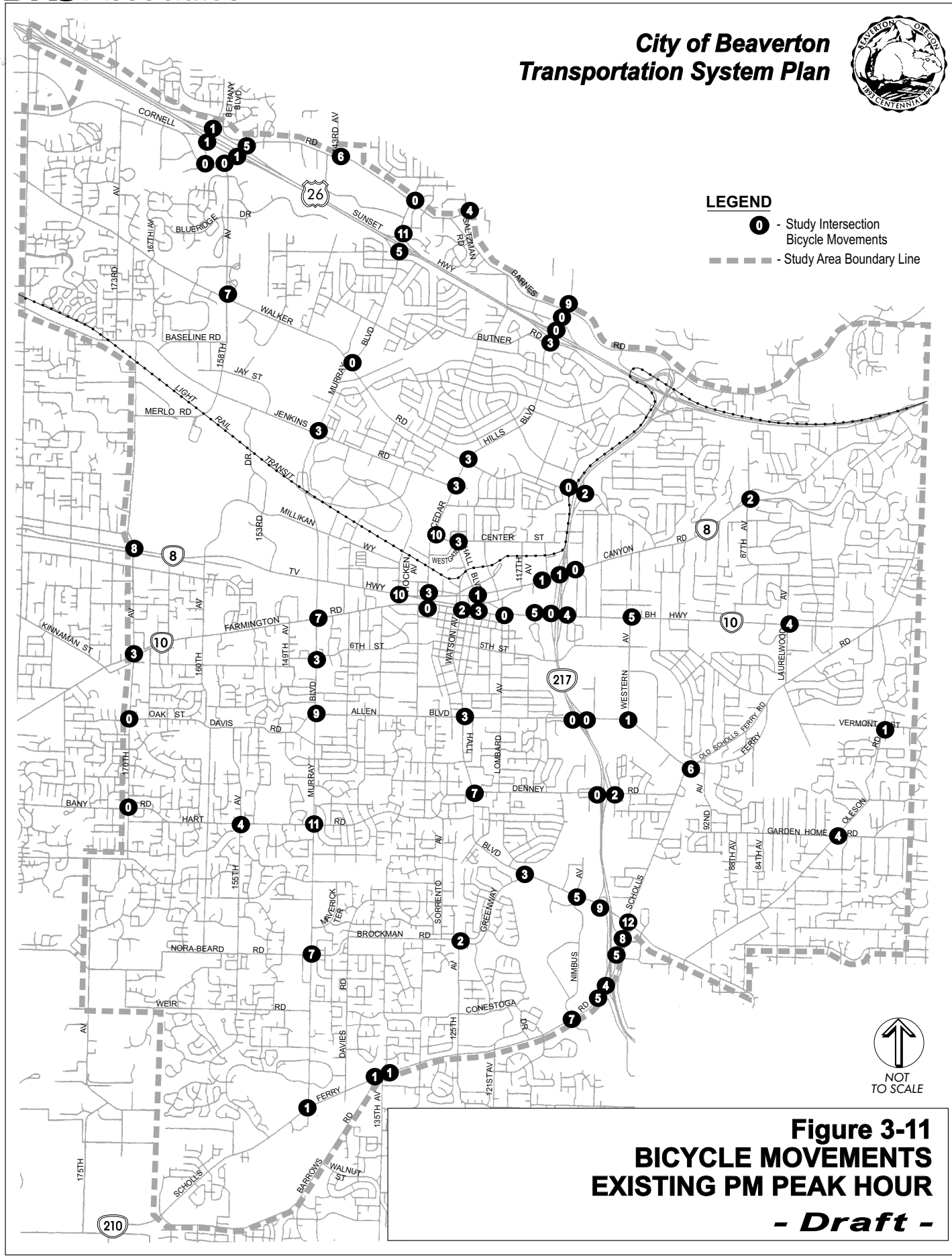

Figure 3-11
BICYCLE MOVEMENTS
EXISTING PM PEAK HOUR
- Draft -

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Transportation System Plan

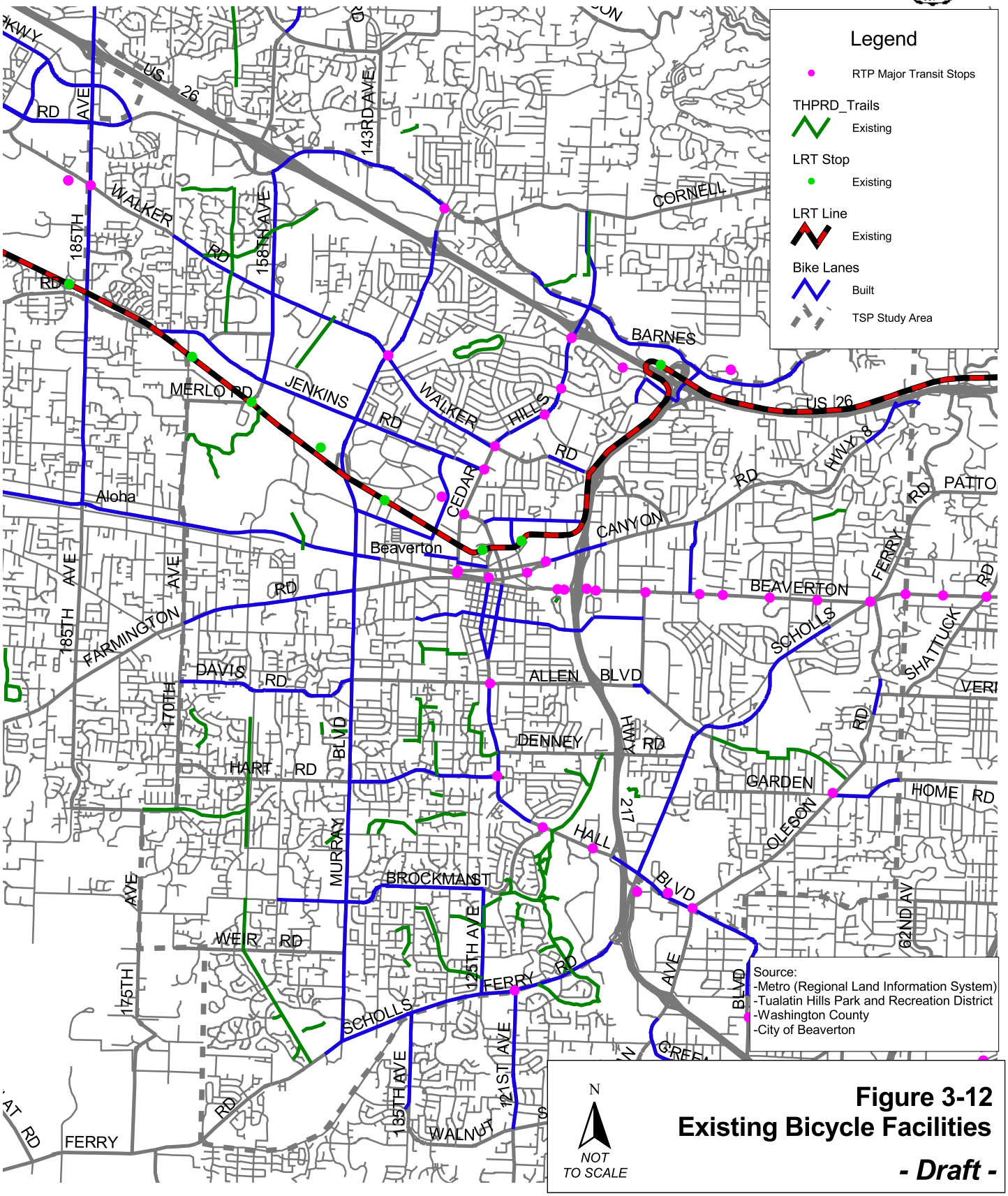

Figure 3-12
Existing Bicycle Facilities
- Draft -

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Transportation System Plan

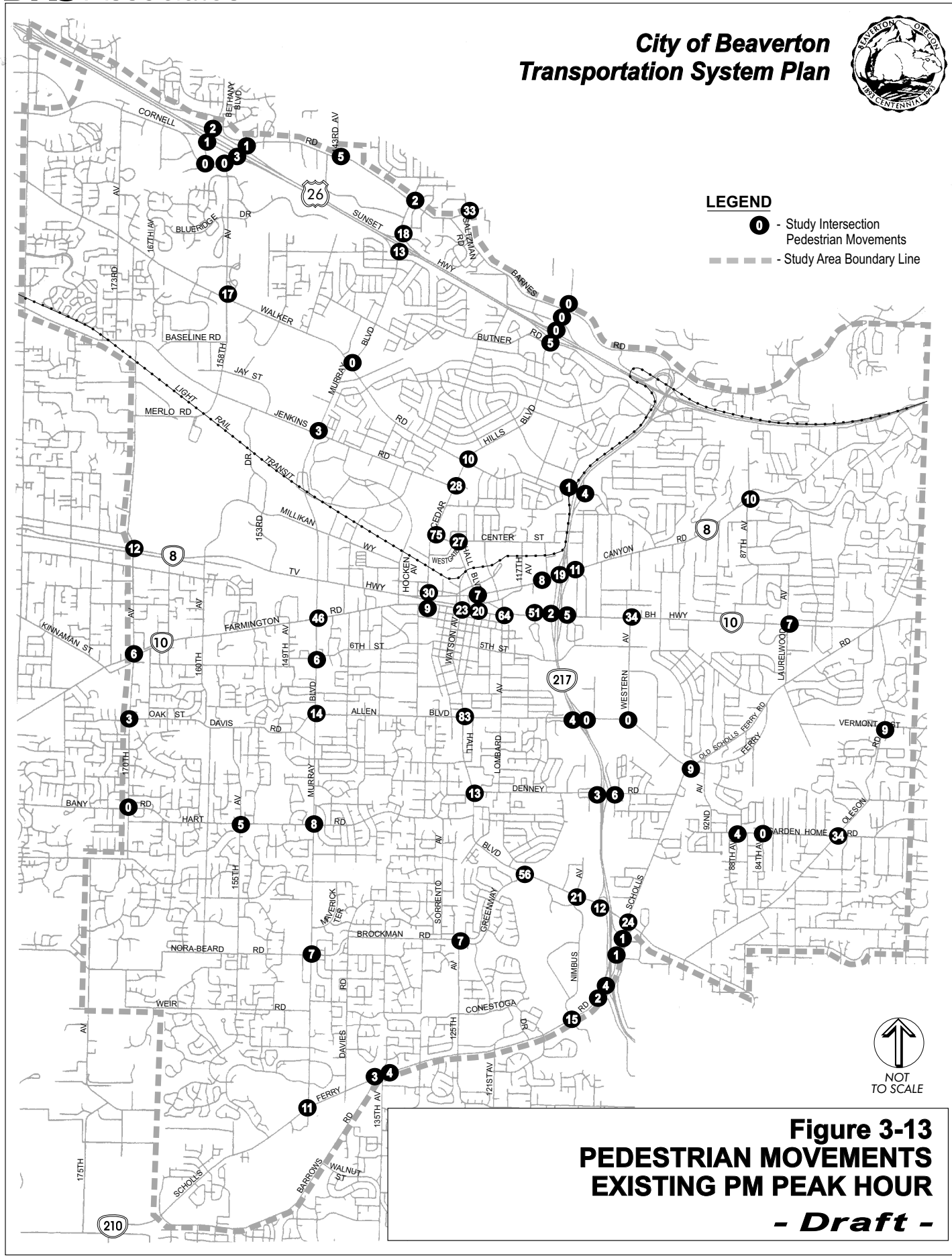

Figure 3-13
PEDESTRIAN MOVEMENTS
EXISTING PM PEAK HOUR
- Draft -

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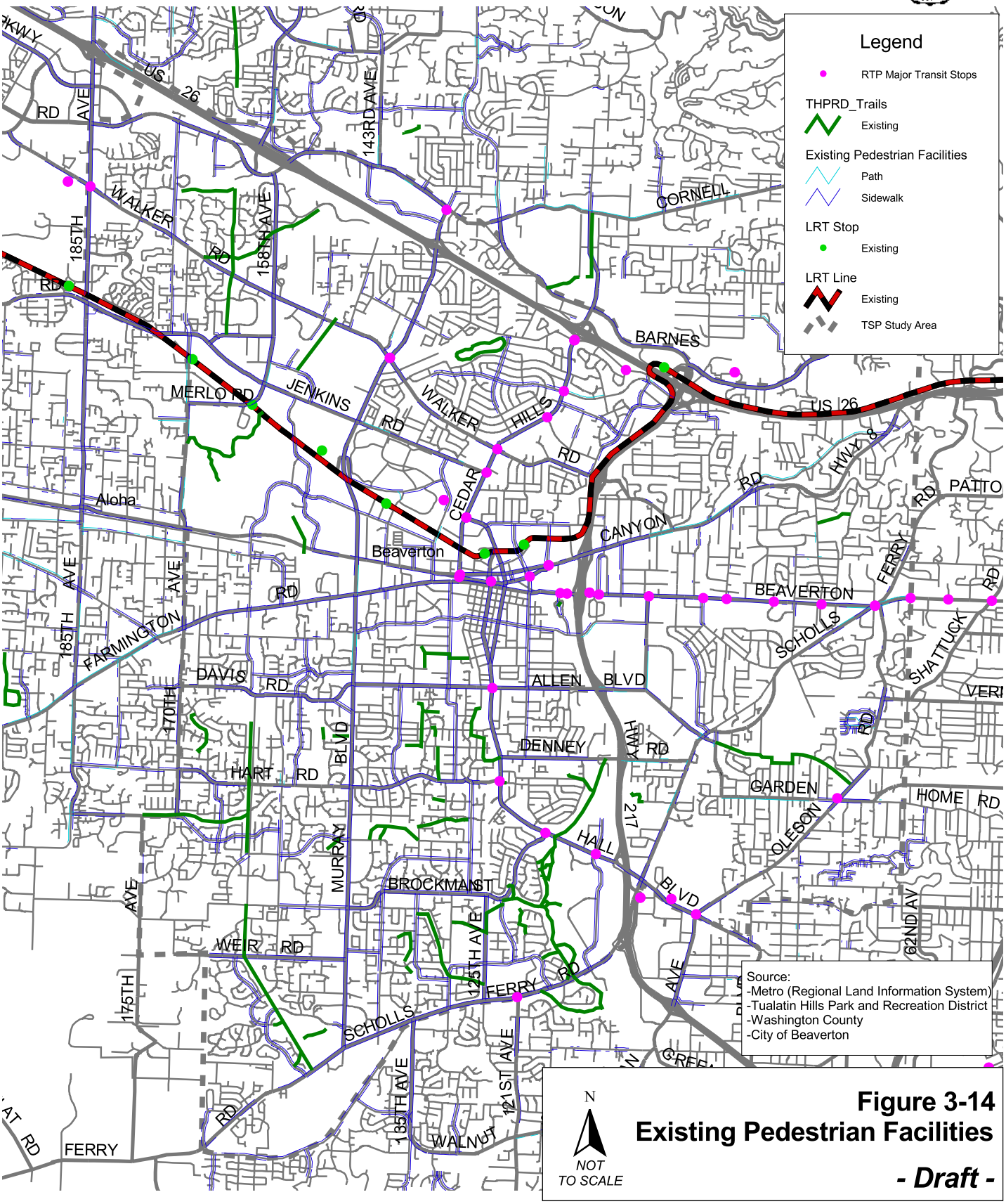

Figure 3-14
Existing Pedestrian Facilities

- Draft -

City of Beaverton
Transportation System Plan

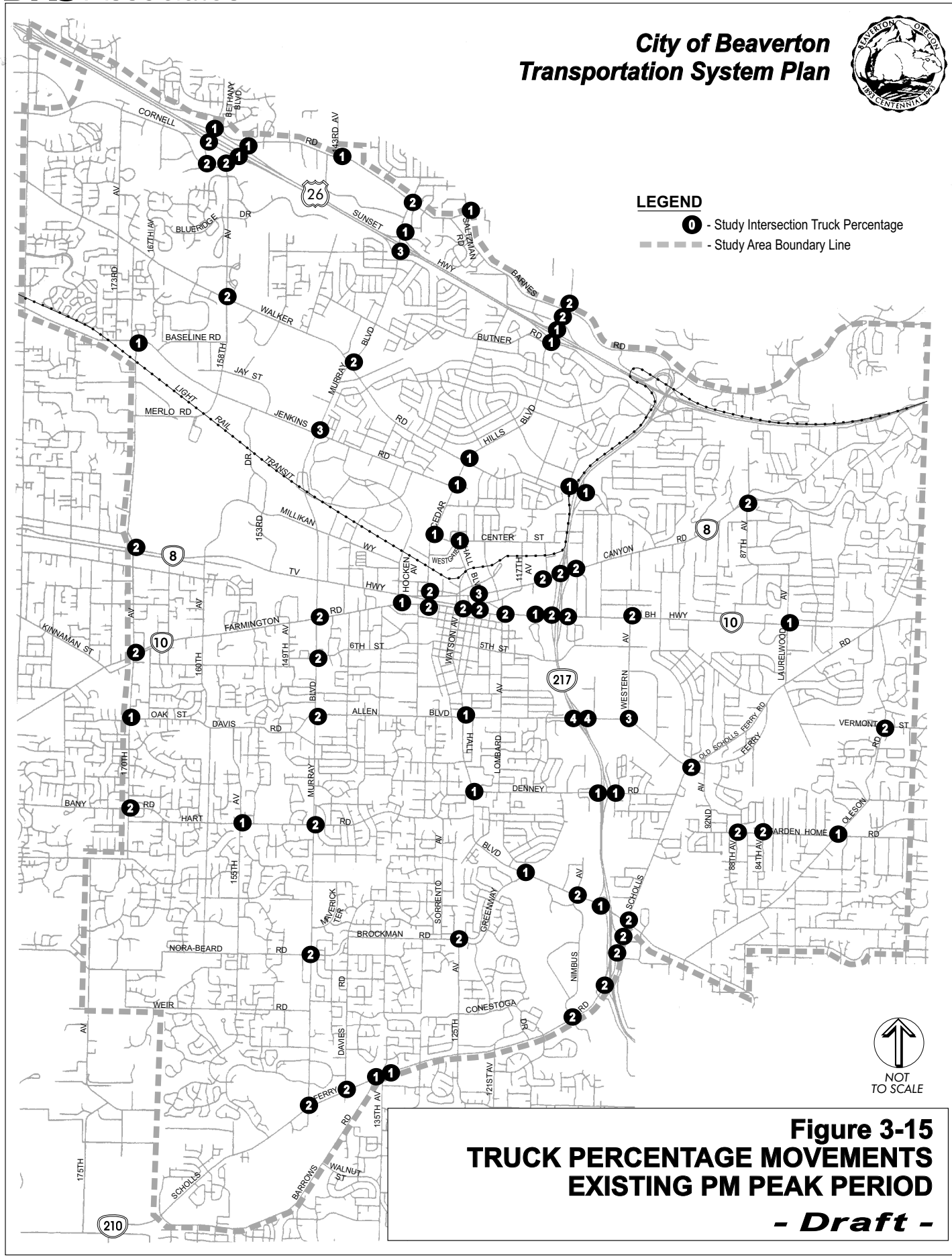

Figure 3-15
TRUCK PERCENTAGE MOVEMENTS
EXISTING PM PEAK PERIOD
- Draft -

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City of Beaverton
Transportation System Plan

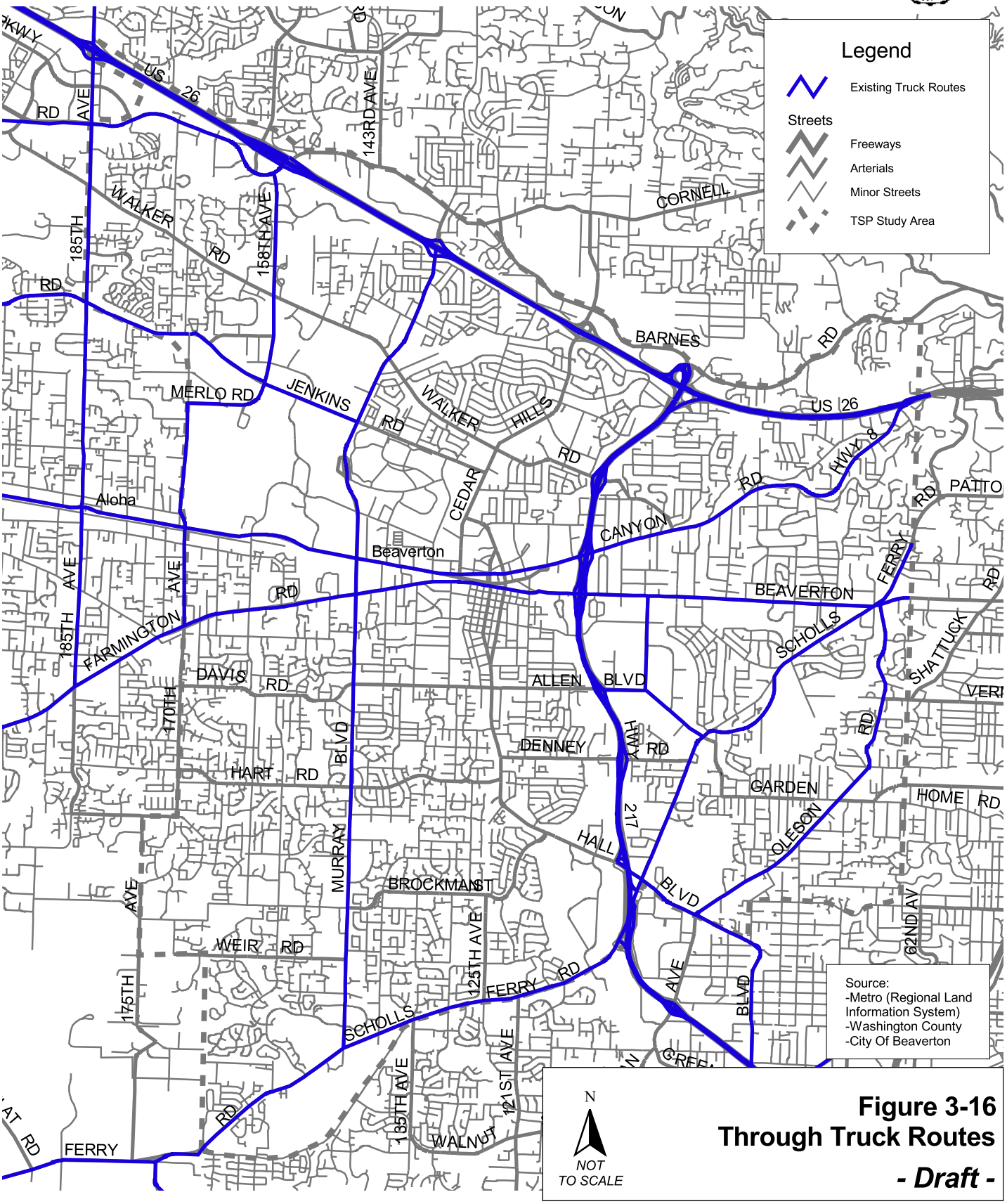

Figure 3-16
Through Truck Routes
- Draft -